Original Research Paper

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Dermatology

CLINICO-MYCOLOGICAL STUDY OF TINEA CAPITIS

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Introduction:
Dermatophytes from the genera Trichophyton and Microsporum cause tinea capitis, a superficial fungal infection of the scalp and scalp hair. The fungi that cause the condition might change over time and space. Tinea capitis mostly affects youngsters, though it can sometimes affect adults. Children between the ages of 3 and 14 are the ones who are most likely to develop it . The lack of fatty acids in sebum, which have a fungi-static effect, has been linked to the increased prevalence in pre-pubertal children. With poor personal hygiene, congestion, and low socioeconomic level, transmission is exacerbated . The species may evolve over time in any location, particularly as new organisms are brought in via immigration. In order to identify the numerous etiological agents, different clinical kinds, research the epidemiological features, and establish the clinico-mycological association of tinea capitis, a study was carried out in our hospital .

Aims and Objectives:
1. To research socioeconomic and etiological features of tinea capitis, such as age, sex, and gender.
2. To research the numerous forms of tinea capitis that are clinical.
3. Researching the numerous etiological factors that contribute to tinea capitis.

Materials and methods:
It is a prospective, analytical study conducted on 100 patients attending to the dermatology OPD at Viswabharathi Medical College from 2021 July to 2022 July. Age, sex and duration of the disease were recorded. Detailed history with regard to socio economic status, haircut, contact with pet animals, similar lesions in siblings or friends and associated systemic illness was taken. Dermatological examination was done. Scalp scrapings and hair root samples were analyzed by KOH wet mount. KOH positive specimens were cultured on Sabourauds dextrose agar with and without actidione.

Inclusion criteria: All patients with tinea capitis, belonging to any age group and both sexes with KOH smear positivity.

Exclusion criteria: Patients who had taken topical antifungal treatment 2 weeks prior and systemic antifungal treatment 4 weeks prior to the study.

Data were entered into excel sheets and statistical analysis was done using Microsoft excel 2013. Informed and written consent has been taken from all the participants of the study and the study abides by the guidelines laid by the declaration of Helsinki.

Results:
The mean age of the study population was 10.2 ± 3.6 years. The youngest participant was 1 year old. Most common age group was 5-10 years old, followed by 10-15 years old. Out of the 100 patients, 66 were males and 44 were females. 42% patients had a history of haircut, 3% had a history of contact with pet animals, 48% had a history of sharing of combs with affected siblings and 7% had a family history of dermatophyte infection. Association with other clinical types of dermatophytosis was observed in 22 patients (22%).

Tinea capitis alone was seen in 78 patients (78%). Among the associated dermatophyte infections tinea corporis was the most common accounting for 40%, followed by tinea cruris (16%) and tinea faciei (10%). There was an association with extensive dermatophyte infection in the rest of the cases (34%). Among the Tinea capitis, 64% were non-inflammatory type, 23% were inflammatory type and the rest 13% were mixed type. Most common pattern observed was grey patch (44%), followed by smooth bald patch (14%) and glabrous type (11%). Of the 100 specimens subjected to KOH mount, 46 (46%) showed endothrix spores and 12 (12%) showed hyaline branched septate hyphae with spores and the rest of the 42 (42%) showed only spores.

The culture in Sabouraud's dextrose agar with actidione, positive isolates were obtained in 74 (74%) cases. The various organisms isolated were Trichophyton tonsurans (31%), T. violaceum (25%), T.mentagrophytes (24%), T. rubrum (13%), and T.verrucosum (7%).

Clinical image of a 11 year old boy with Tinea capitum

Discussion:
Tinea capitis occurs predominantly in children, although it can be seen in all age groups as observed by Kamalam et al (4), Vanbreuseghem et al (5), Kumari et al and Sehgal et al(6). In this study, the common age group affected was 5 to 10 years while the infection was less common in the age group above 16 years. Patients aged 15 years and below account for nearly 87% of cases of tinea capitis. Male:Female ratio was 1.5. The male predominance could be due to the short hair when compared to girls3 .The study by Kamalam et al also showed that tinea capitis was most common in the 5-10 years age group and males were affected more than females with a ratio varying from 3:2 to 4:1. A similar observation of higher incidence between 5-10 years of age with a male preponderance was observed by Vanbreuseghem in his study. Non-inflammatory type was mainly observed in all the age groups when compared to the inflammatory type. Both the non-inflammatory and inflammatory types were more common in age group less than 10 years. Day and Maplestone also observed that, both the non-inflammatory and inflammatory types were more common in age group less than 10 years with Tinea capitis. T.tonsurans was commonly isolated in the 0-4years age group and T.violaceum was seen in higher preponderance in 5-10years age group. Unlike our study, the study by Seema bose et al showed that T.mentagrophytes was the common agent isolated from the 5-10 years age group(7). Among the adults, T.rubrum was commonly isolated. In both males and females, T.tonsurans was the most common agent isolated. Kamalam et al also reported that T.rubrum and T.mentagrophytes was mainly responsible for the adult tinea capitis. Transmission is increased with poor personal hygiene, overcrowding and low socio-economic status. Organisms responsible for the tinea capitis have been cultured from fomites such as combs, caps, pillow cases and theatre seats. Even after shedding,

hair may harbor infectious organisms for over a year. Asymptomatic carriers are common making tinea capitis difficult to eradicate. It was earlier believed that tinea capitis was rare or nearly absent in India due to the use of vegetable oils by the Indians on the scalp for hairdressing, but it was later observed that tinea capitis was by no means rare(8).

Conclusion:

Tinea capitis can affect people of any age, but it typically affects youngsters. Boys were more frequently diagnosed with tinea capitis than girls. Different clinical symptoms of tinea capitis can be seen. More frequently than inflammatory kinds, noninflammatory forms were seen. The most prevalent non-inflammatory kind was grey patch. The most prevalent kind in the inflammatory group was kerion. In several situations, the mixed type was also present. In South India, T. violaceum was the most frequently isolated agent, whereas in this study, T. tonsurans was the most frequently isolated agent. It will take more research with a larger sample size to validate this shift in the organisms' dominance.

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